

ART. XIV.—*Australian Hydrophilidae; Notes and New Species*

By CEDRIC DEANE, A.M.I.E., Aust.

[Read 13th November, 1930; issued separately 26th February, 1931.]

The insects here dealt with all inhabit running streams where the water is flowing at a somewhat slower velocity than that to which the members of the family Dryopidae are usually adapted. In some respects, however, their habits are similar, and collectors are known to mistake the one for the other.

The Hydrophilidae may for certain purposes be divided into two classes according to their habits, viz.: (a) those which swim in the water and have legs formed for swimming (natatorious) and which rest lightly against reeds and other plants when stationary, and (b) those which do not swim, and have legs not formed for swimming, but which cling to sticks, logs, stones or other objects in the flowing water, being at most times submerged.

It is with the latter group that the present paper is concerned.

In Stephens' "Manual of British Coleoptera," 1839, there appear the names and descriptions of eleven species of a genus *Ochthebius* and three of *Enicocerus*. The species of the former were later re-arranged and *Enicocerus* was included in *Ochthebius*. This genus occurs throughout Europe and other parts.

Hitherto only four species have been described under *Ochthebius* from Australia. These are *O. australis* Blackburn, *O. novicius* Blackburn, *O. brisbanensis* Blackburn, and *O. macrognathus* Lea. The difference between *O. novicius* on the one hand and the remaining three on the other are, in my opinion, sufficiently great to accord them at least generic separation. Moreover, *O. brisbanensis* Bl., and *O. longipes*, n. sp., in regard to the clypeus, prothorax and legs, could well be separated from *O. australis* Bl., *O. clarki*, n. sp., and *O. clypeatus*, n. sp.

An interesting feature of these insects is the structure and arrangement of the antennae and maxillary palpi. Without the aid of a lens the palpi may be mistaken for the antennae, due to the prominence of the former, and partial concealment of the latter. The antennae are laid back and curved around the base of the eyes below; they are with difficulty set out for examination. The club, composed of the five apical segments, is entirely concealed in the cavity of the prothorax, which receives the eye when the head is retracted. These segments seem almost prone to become broken off, the appearance of the remaining portion of the appendage being thus misleading. Whether this calamity occurs before or after death of the insect I have not yet ascertained, but sometimes the detached club may be seen adhering to the gum on the card near the mounted specimen.

OCHTHEBIUS CLARKI, n. sp.

(Text-fig. 1, No. 1.)

Subelliptic, nitid, cupreous. Head spatulate, dull black. Clypeus arcuate, anterior margin entire, not excavated. Eyes normal. Pronotum subtrapeziform, somewhat transverse, brown, rather nitid; scarcely emarginate, widest at apex; anterior angles acute, median sulcus straight, narrow; four shallow depressions or foveolae on the disc symmetrically placed with regard to the median axis, the two anterior sub-quadrate, parallel, the two posterior narrower, converging towards base. Scutellum invisible. Elytra obovate convex, slightly depressed at centre, sloping away near apex; sides marginate on basal two-thirds, immarginate on apical third; marginal curvature not uniform; punctate striate; interstices feebly convex. Suture elevated. Legs small, light brown, not nitid; posterior tibiae not reaching to apex of elytra. Claws very small. Wings white.

Length, 1.65 mm.; width, 0.72 mm.

Habitat.—Sydney, New South Wales.

Type in National Museum, Melbourne.

This species may be distinguished from *O. australis* by its more metallic cupreous colour, its smaller legs, less convex interstices to the elytral striae and pronotum narrowing towards base. The eyes also are set forward slightly, whilst in *O. australis* they are set somewhat backward. Dedicated to Mr. John Clark, of the National Museum, Melbourne.

OCHTHEBIUS ANGUSTIPENNIS, n. sp.

(Text-fig. 1, No. 2.)

Convex, rather elongate, brassy-black, nitid. Head irregular, coarsely wrinkled, black, nitid. Clypeus with a medial protuberance, pubescent anteriorly, nitid and finely granulate posteriorly. Eyes set slightly upward. Palpi large. Pronotum jardiniere-shaped, surrounded by a membranous frill, black, nitid, subcylindric in centre, flanged at sides; medial sulcus wide, rather deep, constricted at centre; anterior impressions nearly circular, conspicuous: posterior almost obsolete; widest before middle, anterior angles acute. Scutellum minute, hardly visible. Elytra narrow, convex, striato-punctate, interstices not very convex; humeral angles normal; apices slightly rounded; suture gaping, somewhat raised. Legs normal, orange to light brown. Tibiae straight, posterior extending just beyond apex of elytra.

Length, 1.44 mm.; width, 0.61 mm.

Habitat.—Sydney, New South Wales (H. W. Cox).

Type in National Museum, Melbourne.

This species differs from *O. clarki* in having form narrower, side portions of prothorax cut away before reaching base, prothorax widest just before middle, pronotum more convex, clypeus toothed.

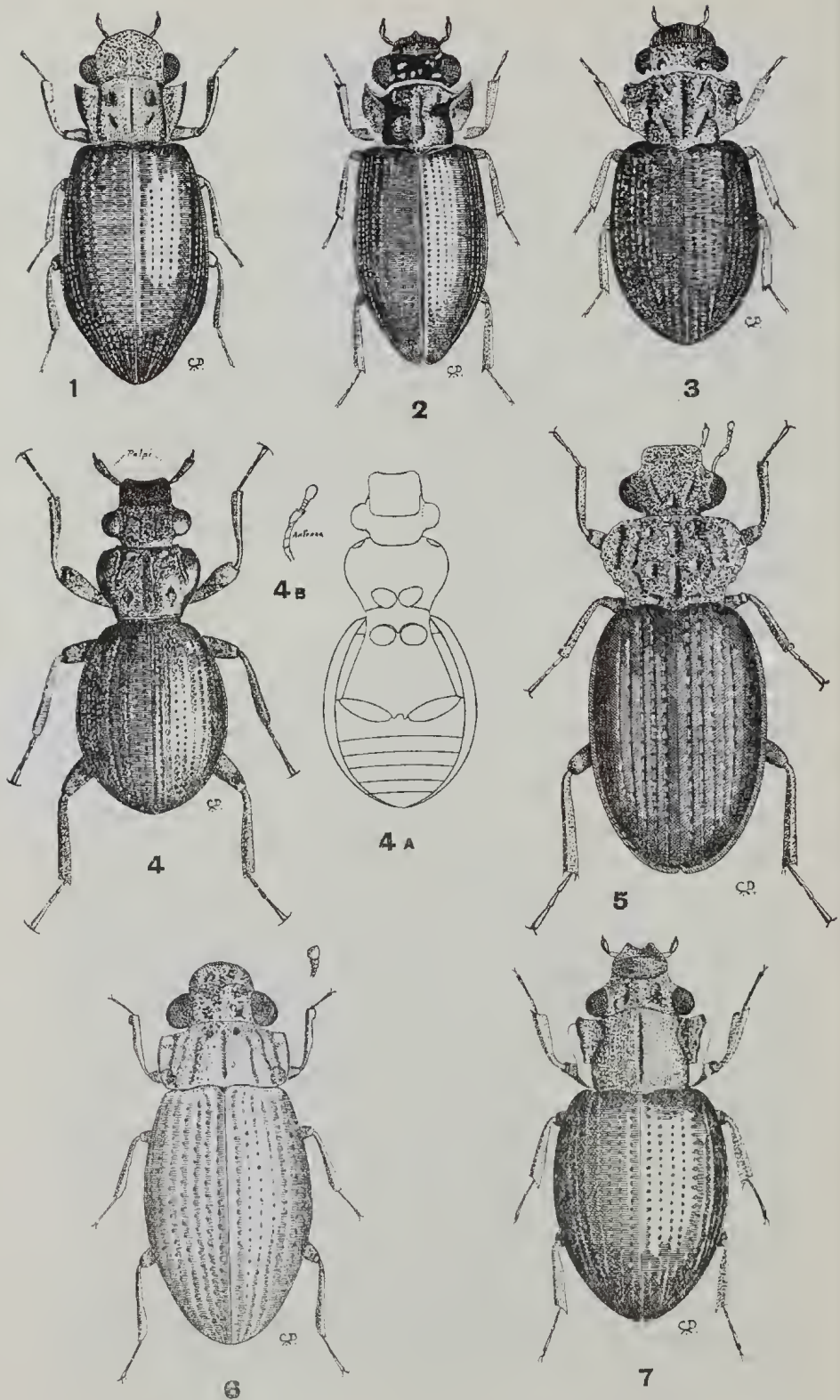


FIG. 1.

- | | |
|-------------------------------------------------------------------|---------------------------------|
| 1. <i>Ochthebius clarki</i> , n. sp. | 5. <i>O. noricius</i> Blackb. |
| 2. <i>O. angustipennis</i> , n. sp. | 6. <i>O. australis</i> Blackb. |
| 3. <i>O. tenebricosus</i> , n. sp. | 7. <i>O. clypeatus</i> , n. sp. |
| 4. <i>O. longipes</i> , n. sp., 4a, ventral diagram, 4b, antenna. | |

OCHTHEBIUS TENEBRICOSUS, n. sp.

(Text-fig. 1, No. 3.)

Ovate, lightly convex, dull black. Head short, wide, black; a globular brown tubercle on each side near base. Clypeus slightly pubescent, with faint protuberance at middle of anterior margin. Eyes set slightly upwards. Palpi small. Pronotum sub-scutellate, dull; membranous frill on anterior margin only; flanges wide, toothed at widest part; lateral margins excavate on posterior half; median sulcus deep, not constricted, widest just before middle, tapering towards base and apex; the four discal impressions fossate oblique, both pairs converging towards base. Scutellum invisible. Elytra wide, punctate-striate, the punctures wide and shallow. Suture close-fitting, not elevated. Legs flavous, small, posterior tibiae not reaching to apex of elytra.

Length, 1.57 mm.; width, 0.69 mm.

Habitat.—Sydney, New South Wales (Carter).

Type in National Museum, Melbourne.

This species is perhaps distantly allied to *O. novicius* Blackburn, more particularly in the general structure of the prothorax, the elytra and the legs, which, however, are shorter. In the shape of the head it differs greatly, the front of clypeus being protuberant in middle, and the eyes being set more normally. The pronotal impressions in the new species are all fossate, whereas in *O. novicius* Bl. the outer four are foveolate. The elytra are practically immarginate, and the striae are less strongly marked in the new species, which on the whole is much smaller.

OCHTHEBIUS PALLIDIPENNIS, n. sp.

(Text-fig. 2a.)

Elongate-elliptic, convex, somewhat nitid, flavous. Head narrow, spatulate, coarsely rugose. Clypeus arcuate on anterior margin. Antennae rather free, terminal segments composing club distinctly separated. Palpi with terminal segment very slender, acutely pointed. Eyes small, prominent. Prothorax sub-cordate-scutellate, widest before middle, coarsely and irregularly and feebly punctate; no large and conspicuous fossae; transverse, with narrow pergameneous, flanges on basal half of sides and on anterior margin. Scutellum invisible. Elytra elliptic, punctate-striate, margin entire, not dehiscent at apex; suture not raised. Legs medium; posterior femora not reaching to, tibiae extending beyond, apex of abdomen.

Length, 1.85 mm.; width, 0.83 mm.

Habitat.—Townsville, North Queensland (G. F. Hill).

Type in Coll. Wilson.

This species stands somewhat alone, being not nearly allied to any of the other Australian forms of the genus; in fact, it would be suggestive of a new genus, were it not for the palpi which are rather of the typical *Ochthebius* form.

OCHTHEBIUS FISCHERI, n. sp.

Oval, convex, somewhat nitid, black, form rather wide. Head fossate. Clypeus obtusely pointed or with a tooth on centre of anterior margin; suture strong; feebly tuberclose near eyes. Eyes large. Palpi with apical segment short. Prothorax strongly transverse, disc qualrifossate, with narrow pergameneous flange on anterior margin only; widest at middle. Scutellum invisible. Elytra oval, strongly striate-punctate; not dehiscent at apex. Legs light brown; anterior tibiae robust, posterior tibiae scarcely reaching to apex of abdomen.

Length, 1.65 mm.; width, 0.77 mm.

Habitat.—Melbourne, Victoria (Ejnar Fischer).

Type in National Museum, Melbourne.

I have named this species after my late friend Ejnar Fischer, of Oslo, Norway. It is allied to *O. australis* Blackb., from which

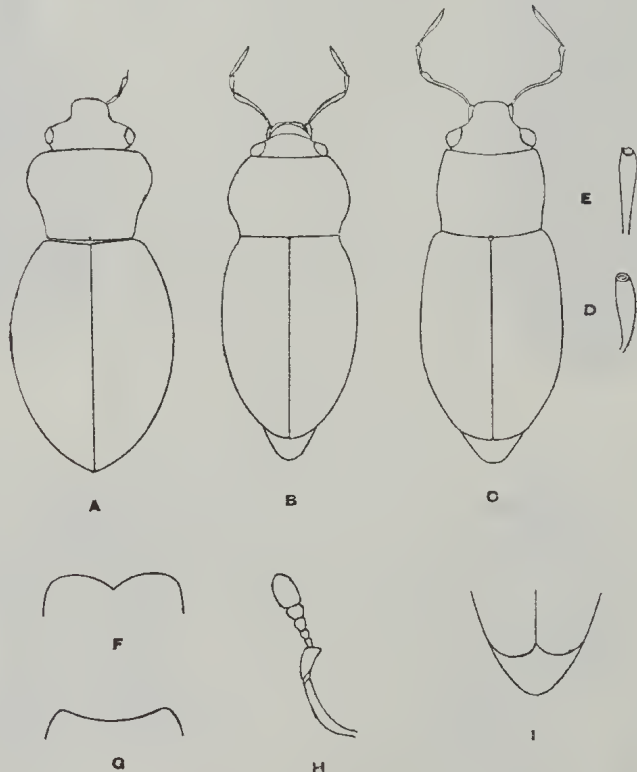


FIG. 2.

- A. *Ochthebius pallidipennis*, n. sp.
 B. *Hydraena williamsensis*, n. sp.
 C. *Hydraena simplicicollis* Blackb.
 D. Sub-apical palp segment of *H. williamsensis*, n. sp.
 E. Sub-apical palp segment of *H. simplicicollis* Blackb.
 F. Clypeus of *Ochthebius obcordatus*, n. sp.
 G. Clypeus of *O. longipes*, n. sp.
 H. Antenna of *O. obcordatus*, n. sp.
 I. Apices of abdomen and elytra of *H. rudallensis* Blackb. (from type).

it differs in colour, wider form, clypeus bluntly pointed or toothed in front, terminal palpi segments shorter and pronotum with four separate fossae instead of two long ones.

OCHTHEBIUS CLYPEATUS, n. sp.

(Text-fig. 1, No. 7.)

Ovate, convex, cupreous-black, nitid. Head sub-triangular, concave above, black, dull; two deep foveolae on crest, each with a hemispherical tubercle behind. Clypeus deeply and narrowly excavated. Eyes normal or projecting slightly backward. Palpi normal. Pronotum: median sulcus normal, not constricted, widest near apex; flanges truncate behind; membranous frill on lateral margins only, reaching to base but scarcely to apex; frill rather wide. Scutellum invisible. Elytra widely ovate, convex, entire; bronze-black, nitid, striate-punctate. Legs pale ochreous, slightly nitid; tibial spurs strong; posterior tibiae reaching to apex of elytra. Tarsi long.

Length, 1.87 mm.; width, 0.88 mm.

Habitat.—Alps, Victoria.

Type in National Museum, Melbourne.

This species differs from *O. clarki* in having the anterior angles of pronotum rounded, the lateral portions truncate, side margins sinuous, form wider, head foveolate tuberculose, prothoracic frills strongly developed, clypeus deeply notched in the male.

OCHTHEBIUS LEAI, n. sp.

Ovate, convex, black, opaque. Head rounded in front, convex above; clypeus, nitid, arcuate on anterior margin. Tuberculae on disc near base. Palpi small. Prothorax transverse, explanate, nitid, not punctate; disc fossate; side margins nearly parallel. Scutellum invisible. Elytra ovate, very convex on posterior declivity, depressed somewhat in centre, feebly punctate-striate, interstices scarcely convex, side margins recurved, conspicuous from above. Legs reddish brown, robust; posterior tibiae reaching to apex of elytra.

Length, 1.6 mm.; width, 0.75 mm.

Habitat.—Tasmania (A. M. Lea).

Type in National Museum, Melbourne.

This species differs from *O. australis* Blackb., in size, colour, sculpture of the head, elytral flanges and shoulders, and the position of maximum convexity on the elytra.

OCHTHEBIUS LONGIPES, n. sp.

(Text-fig. 1, No. 4; text-fig. 2g.)

Convex, black nitid. Head quadrate. Clypeus excavated in front, clypeal suture concave anteriorly, furrow on each side arising before and near the eye running towards centre, then

parallel to each other back to near the posterior margin. Antennae incrassate near middle. Palpi large, brown, nitid. Eyes widest at middle, projecting outwards. Pronotum subcordate, not deltoïd, widest before middle, without pergameneous flanges, lateral margins convex on anterior two-thirds, concave on posterior thirds, anterior angles notched, median suture on raised ridge wide, continuous; an oblique fossa near each anterior corner, these fossae diverging posteriorly; a large pit or variole in the shape of the ace of spades near each posterior angle; a variole on either side of the median suture or ridge near apex. Scutellum invisible. Elytra oval, convex, entire, striate-punctate, punctures regular and even, continuing to apex; convexity uniform, not dipping away on apical third, marginal curvature uniform; punctures large, distinct, interstices lightly convex; suture not elevated. Legs large, posterior femora reaching apex, tibiae extending far beyond apex of elytra. Tarsi robust; claws strong. Wings pale violet, iridescent; fringed with hairs.

Length, 1.37 mm.; width, 0.62 mm.

Habitat.—Tambourine, South Queensland (C. Deane).

Type in National Museum; co-types in South Australian Museum, Coll. Lea, Coll. Deane, etc.

This species may possibly be allied to *O. brisbanensis* Blackb., although not having seen the type I am unable to say how close the relationship may be. A point of distinction between the two would be the emarginate prothorax of *O. brisbanensis* given in Blackburn's description as against an absence of that feature in the present species. *O. longipes* differs from the specimens of *O. brisbanensis* in the S.A. Mus. in the excavated anterior clypeal margin absence of flanges to the prothorax and longer legs, etc.

In Stephens' Manual of British Coleoptera published in 1839 three species of *Enicocerus* are listed with their descriptions; these are *E. viridiaeneus*, *E. tristis* and *E. gibsoni*. In G. R. Waterhouse's Pocket Catalogue of British Coleoptera, however, published in 1861, *Enicocerus* was included under *Ochthebius* as a subgenus. The new species herein described as *O. longipes* bears a resemblance to these three British species, specimens of which I have examined. Moreover the two or three new species herein described differ more widely from the typical species of *Ochthebius*, e.g. *O. australis*, *O. leai*, and *O. clarki*, in Australia, or *O. aeratus*, *O. aeneus* and *O. bicolor* in Europe, than does *Enicocerus*. It therefore appears that a new genus may eventually become desirable to accommodate *O. longipes* and *O. obcordatus*, or else *Enicocerus* should again be elevated to full generic status.

OCHTHEBIUS OBCORDATUS, n. sp.

(Text-fig. 2f,h.)

Convex, black, nitid. Head sub-quadrate. Clypeus notched in front, clypeal suture concave anteriorly; convex, irregularly punc-

tate, feebly fossate, tuberculose at base between eyes. Eyes and palpi normal. Antennae slightly incrassate. Prothorax obcordate, widest just before middle, without pergameneous flanges, centre almost flat, sides sloping, almost longitudinally prismatic; median sulcus almost obsolete, very shallow, wide, its boundary marked by slight ridge; not fossate near posterior angles; side margins crenulate. Scutellum invisible. Elytra oval, convex, entire, striate-punctate, punctures regular and even, continuing to apices; interstices, except 4th and 6th, finely punctate, the punctures being in single row. Legs rather large, nitid, piceous, posterior femora reaching apex of abdomen.

Length, 1.84 mm.; width, 0.87 mm.

Habitat.—Upper Williams River, New South Wales (F. E. Wilson).

Type in National Museum, Melbourne.

O. obcordatus differs from *O. longipes* in having much larger size, surface more nitid, legs piceous, head not rugose, clypeus notched instead of widely excavated in front, antennae less incrassate, palpi slightly more slender but first segment more clavate, posterior femora shorter in proportion, striae and puncturation of elytra more sharply defined.

For convenience in having under the one cover descriptions of existing species for comparison, treated on the same plan, I have redescribed *O. australis* Blackb. and *O. novicius* Blackb. from authentic material available, the former being certified to by Mr. A. M. Lea and the latter being Blackburn's original type specimens.

OCHTHEBIUS AUSTRALIS Blackb.

(P.L.S.N.S.W. [2], iii, p. 835, 1888.)

(Text-fig. 1, No. 6.)

Elliptic, convex, scarcely nitid, light coppery brown. Head spatulate, rather depressed, somewhat lacunose, glabrous, bay, rather nitid; clypeus narrowly rounded in front, sides converging slightly anteriorly, descending towards frontal margin, convex, dark chestnut. Eyes of medium size, set slightly backward, hardly socketed, yellowish grey. Palpi small, nitid, flavous, terminal segment small, obconic; subterminal short subovate. Antennae seven-segmented; scape long, yellow, apparently of two segments, but the joint not mobile; pedicel short, yellow, rather wide; flagellum of a slightly darker shade, composed of five segments increasing uniformly towards apex, each of the terminal four being considerably larger than the one preceding it. Pronotum strongly transverse, subquadrate, marginate, margins thick; disc transversely convex, subcylindric, trifossate, bifoveolate, nitid, cinnamomeous, faintly punctate, very sparsely pubescent; anterior margin, convex medially, concave laterally, posterior

margin bisinuate; anterior angles obtuse, posterior rounded, greatly depressed, almost pergameneous. Scutellum small, visible, glabrous, black. Elytra ovate, widest at centre, convex, strongly so on apical half, apices narrow, striate-punctate, sparsely pubescent, the pubescence confined to striae, punctures dark brown, rather deep, interstices very convex; suture elevated; humeral angles obtuse, hardly rounded, marginate. Wings white, margins sparsely ciliate. Prosternum with antennal cavities, widely open in front. Sternal surface brown. Metasternal episterna with margins dark brown. Epipleurae widest near base, gradually tapering and extending to and vanishing at apex. Abdomen with seven visible ventral segments. Legs flavous. Anterior coxae rather small, ellipsoidal, contiguous, somewhat exserted; intermediate coxae of medium size, globular, almost contiguous, deeply set in mesosternum; posterior coxae lamellate, transverse, depressed in centre, the depression extending for the greater part of the length and being surrounded by a small ridge. Femora glabrous, tibiae setose, setae white; tarsi with apical segment light brown. Claws rather small, flavous.

Length, 1.9 mm.; width, 0.82 mm.

Habitat.—Adelaide, South Australia (Rev. T. Blackburn).

Type in British Museum.

OCHTHEBIUS NOVICIUS Blackb.

(Rept. Horn Exped. Centr. Aust., Feb., 1896.)

(Text-fig. 1, No. 5.)

Subelliptic, somewhat elongate, rather depressed, black, opaque. Head subquadrate, depressed, opaque, fossate, finely rugose. Clypeus rectangular, front margin rectilinear, side margins parallel; base narrower than front. Eyes medium to small, socketed, set somewhat forward and upward, almost pear-shaped. Antennae irregular, incrassate, somewhat clavate, acicular, elbowed. Palpi rather small. Pronotum cordate, depressed, embossed, gibbose, fossate, porose, widest just before middle; anterior margin very slightly convex horizontally, posterior margin somewhat biconcave; anterior angles obtuse, posterior rectangular or scarcely acute; base narrower than apex; most elevated portion of disc bifossate-quadrifoveolate. Scutellum invisible or very minute. Elytra oval, slightly convex, narrowly marginate, striate-punctate; interstices wide, hardly convex; striae broad, shallow, distinct, punctures well defined; suture not raised; not steeply sloping from centre towards apical declivity; apices not dehiscent; margins moderately thin, uniform, continuing to, but not vanishing to, apices; widest at middle; humeral angles rounded. Sternum, excluding appendages, dull purplish grey, almost finely velutinous. Metasternum with a scutellate nitid patch in centre; metasternal episternum equal in length to the metasternum. Epipleurae extending to apices of elytra. Abdo-

men with six visible ventral segments, apex light brown, nitid. Legs light brown, nitid. Anterior coxae ellipsoidal, contiguous; intermediate coxae globular, almost contiguous; posterior coxae lamellate, broad, transverse-oblique; femora robust, posterior pair not reaching nearly to apex of abdomen; posterior tibiae extending just beyond apex of abdomen. Tarsi with apical segments dark brown; claws yellow.

Length, 2.54 mm.; width, 1.08 mm.

Habitat.—Central Australia, Reedy Hole (Horn Expedition).

Type in National Museum, Melbourne.

The antennae are seven-segmented, although appearing eight-segmented; the scape is divided into two portions, but the joint between these is not mobile. The scape and pedicel are yellow, nitid, the remaining five segments are dull grey and finely pubescent, globular to subcordate in form, each of the terminal four being larger than its preceding one, increasing uniformly. The scape is in the form of a long curved stem which fits around the eye base; in *O. longipes*, n. sp., this segment is divided into as many as four subsegments, all of them being immobile. The shape and proportions of the flagellum are also characteristic; in *O. obcordatus*, n. sp., the apical segment is two and one-half times the length of the preceding one, in *O. longipes*, n. sp., the proportion is four and one half, whilst in *O. novicius* Blackb. it is only one and one half. The underneath surface of the head in the gular region, measured in a longitudinal direction, is highly convex as compared with other species of the same genus. The labium is more sharply rectangular, the side portions of mentum being acutely triangular.

HYDRAENA WILLIAMSSENSIS, n. sp.

(Text-fig. 2b.)

Elongate ovate, lightly convex, dark brown, strongly punctate, somewhat nitid. Head short, broad, black, finely punctate, nitid. A broad shallow tubercle on anterior declivity. Clypeus not produced, arcuate in front. Eyes rather widely separated, flat above. Palpi medium, 2nd segment curved one way only (C-form, not S-form); sub-apical segment robust, finely curved at base. Prothorax transverse, widest just behind middle, anterior margin concave, posterior straight, lateral strongly convex; dark brown in centre, light brown towards margins, strongly and irregularly punctate, somewhat nitid, obliquely fossate, the fossae converging towards and meeting near base. Scutellum minute, almost invisible. Elytra lightly convex, or somewhat depressed striate-punctate, broadest at middle; the punctate striae extending to apex; apices not dehiscent, closely contiguous. Side margins upturned. Legs light brown, robust. Posterior tarsi very pale brown.

Length, 1.62 mm.; width, 0.67 mm.

Habitat.—Upper Williams River, New South Wales (F. E. Wilson).

Type in Coll. Wilson.

The species differs from *H. luridipennis* Macl., in having colour dark brown, thorax transverse, none of its angles acute, sides arcuately dilate at middle; from *H. simplicicollis* Blackb., in having width across elytra 9.1% greater than across prothorax instead of 38.6%, also in colour; from *H. rudallensis* in having apices of elytra not at all dehiscent. From *H. simplicicollis* it also differs in having the basal segments of palpi much less curved, and the sub-apical segment rapidly thickening from the base, which is in the form of a curved stem. In the new species also this segment is thickest near middle, whereas in *H. simplicicollis* it is thickest near apex.

The author desires to express his thanks to Mr. Hale and Mr. Lea, of the South Australian Museum, Mr. Kershaw and Mr. Clark, of the National Museum, and Mr. F. E. Wilson and Mr. Oke, of Melbourne, for assistance readily given.